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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,579	03/01/2004	Peter W. Lee	AP99-005BB	9866
7590 08/29/2005				
George O. Saile 28 Davis Avenue Poughkeepsie, NY 12603				
			EXAMINER	
			MAI, ANH D	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 08/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding

Office Action Summary	Application No. 10/790,579	Applicant(s) LEE ET AL.	
	Examiner Anh D. Mai	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of the Claims

1. Amendment filed August 9, 2005 has been entered. Claim 13 has been amended.

Claims 13-15 are pending.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "sense amplifier" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested:

A NON-VOLATILE MEMORY ARRAY ORGANIZED IN ROWS AND COLUMNS.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 13-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.
6. Claim 13 recites the limitation "with **drains of cells** connected to a first source line and **sources of cell** connected to first bit line" in line 23-24. There is insufficient antecedent basis for this limitation in the claim.

The connections are contradicting the disclosure. According to Figs. 2a-3b, source of cell 41 connected to source line SL and drains of cell 41 connected to bit line BL. (See page 9).

The claimed limitation is not just lacking support but also contradicting the disclosure, thus the claim is indefinite.

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Claim 14, recites: the non volatile memory of claim 13, wherein, bit lines extend full length of said columns, **laying between** a first pair of adjacent columns, connecting to said drains of a first column of said first pair of adjacent columns, **to said sources** of a second column of said first pair of adjacent columns, and connecting to a sense amplifier when performing a read operation.

The term “laying between” should have at least two points. The claim does not contain the second point of between.

Similarly, claim 15 recites: the non volatile memory of claim 13 wherein, source lines extend full length of said columns, **laying between** a second pair of adjacent columns, connecting to said sources of a first column of said second pair of adjacent columns connecting to said drains of said second pair of adjacent columns, and connecting to source voltages.

The term “laying between” should have at least two points. The claim does not contain the second point of between.

Both claims 14 and 15 are beyond comprehension, thus are indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 13-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Kao et al.

(U.S. Patent No. 6,211,547).

With respect to claim 13, as best understood by the examiner, Kao teaches non volatile memory as claimed including:

- a) flash memory cells (100) organized in rows and columns,
- b) cells in a row are interconnected by a word line (WL0-x) connecting to control gates of the flash memory cells in the row,
- c) cell layout in a column mirrors cell layout in adjacent columns producing a first pair of adjacent columns with drains close together and a second pair of adjacent columns with sources close together,
- d) a bit line (BBL) extends full length of the columns, laying between the first pair of adjacent columns and connecting the drains of the first pair of adjacent columns to a sense amplifier (112),
- e) a source line (SL1) extends full length of the columns, laying between the second pair of adjacent columns and connecting the sources (S) of the second pair of adjacent columns to source voltages,
- f) a program operation of the flash memory cells organized by a vertical page associated with the source line (SL) whereby a source line (SL) voltage and a bit line (BBL) voltage of the vertical page are set for the program operation and a word line program (WL) voltage is stepped from cell to cell,

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g) an erase operation of the flash memory cells organized by horizontal block whereby all bit lines (BBL), source lines (SL) and word lines (WL) are coupled to a same voltage and then word lines (WL) coupled to cell to be erased are biased to an erase voltage,

h) the cell layout in a column is a same cell layout in adjacent columns producing a first adjacent column with drains (D) of cells connected to a first bit line (BBL) and sources (S) of cells connected to a first source line, and a second adjacent column with sources (S) of cells connected to the first source line (SL1) and drains (D) of cells in the second adjacent column connected to a second bit line (BBL2), allowing vertical page programming and horizontal page/block erase. (See Fig. 6).

With respect to claim 14, as best understood by the examiner, bit lines (BBL) extend full length of the columns, laying between a first pair of adjacent columns, connecting to the drains (D) of a first column of the first pair of adjacent columns, and connecting to a sense amplifier (112) when performing a read operation.

With respect to claim 15, as best understood by the examiner, source lines (SL) extend full length of the columns, laying between a second pair of adjacent columns, connecting to the sources (S) of a first column of the second pair of adjacent columns, connecting to source voltages.

Response to Arguments

8. Applicant's arguments with respect to amended claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh D. Mai whose telephone number is (571) 272-1710. The examiner can normally be reached on 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Anh D. Mai', with a long, sweeping horizontal line extending to the right.

ANH D. MAI
PRIMARY EXAMINER